

## ISE 311: Ergonomics & Work Measurement

### Homework #3

(due: Friday, January 18, 2013)

1. Complete any “Your Turn” exercises (slides 9, 12, 19, and 22) from the Chapter 2 Powerpoint notes that were not completed in class.
2. For the example on slide 19, answer the following in addition to the question on the slide:
  - a. How many kilocalories does the carpenter use during these 9 hours?
  - b. By how much does the carpenter’s heart rate increase while he is sawing with the handsaw?
3. Read the following description of the job of a worker in a distribution center. Write a paragraph or two describing the concerns associated with this job in the areas of musculoskeletal injuries, biomechanics, and work physiology. Include a brief discussion of potential responses the body might have to exercise during a “typical” day on the job. DO NOT attempt to provide an answer for these concerns (you don’t know enough about the job to do so), but be sure you are thorough in your discussion of potential problems.

“A worker in a distribution center is responsible for collecting, packing, labeling, and sending items needed by individual stores in a chain. Typically, the worker will receive an order listing an item number and the number required of each item. The worker will retrieve all items from the warehouse shelves and bring them to the packing area. All items from a given work order are placed in a single box, which is then sealed, labeled, and placed on the conveyor and sent to the loading dock. Because workers are rewarded based on productivity (that is, the number of orders filled in a given shift, they typically will work as fast as possible, often running between the shelves and the packing area with the items. In addition, the weight of the loaded boxes can range from very light to very heavy, depending on the items in the order, and the size of the boxes can range from relatively small (about the size of a box of copier paper) to very large.”